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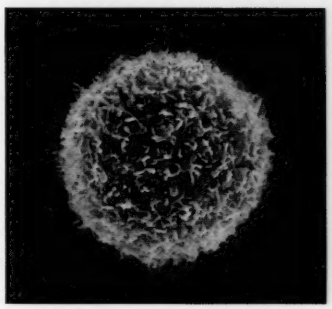

ON THE COVER
Increased activation of the prosurvival protein STAT5 and inhibition of the proapoptotic transcription factor FOXO3a helps explain the longevity of central memory T cells. Related story by Riou et al. Image (provided by Dennis Kunkel, Getty Images, Inc.) shows a scanning electron micrograph of a human T cell.
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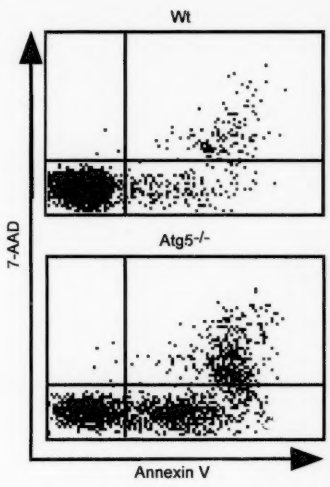

CD8$^+$ T cells lacking the autophagy gene Atg5 undergo increased cell death.
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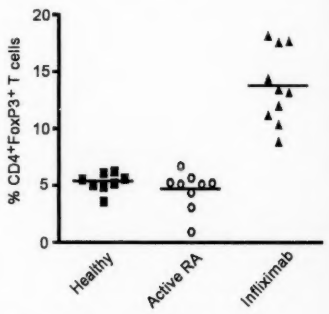

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205 **Correction**

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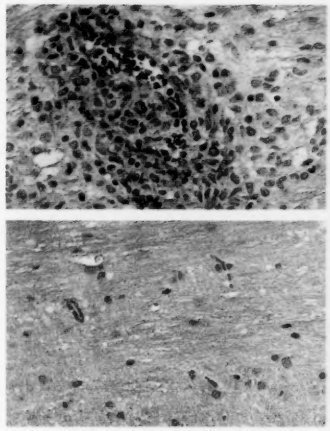

The presence of IL-25 (bottom) reduces infiltration of Th17 cells (blue) in CNS lesions.
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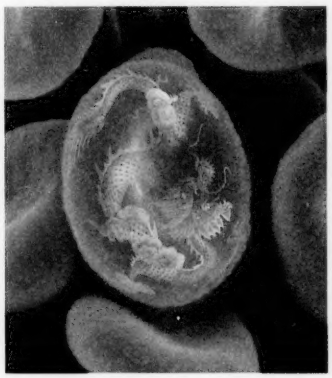

ON THE COVER
Thirty years after the Cultural Revolution, China is getting its act together in bioscience research. See feature article by Wells. Image of red blood cells © Micro Discovery/Corbis; cover concept and design by Mark Yeo.
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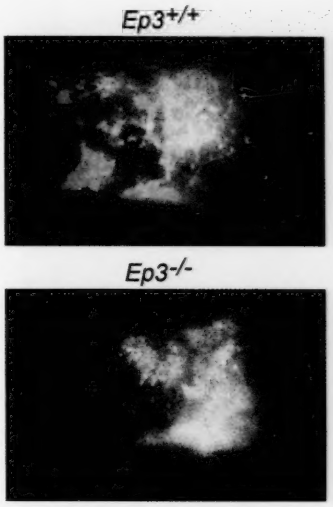

Prostaglandin E is released from atherosclerotic plaques (yellow) and activates platelets via EP3 receptors, which then induces clot formation (green).
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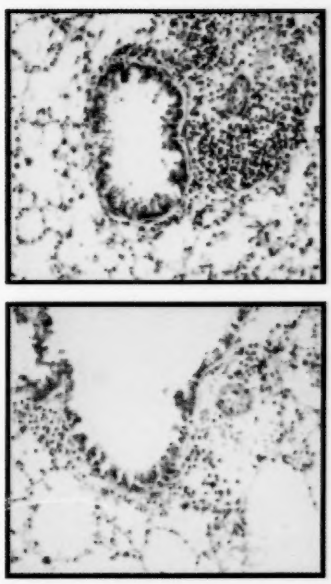

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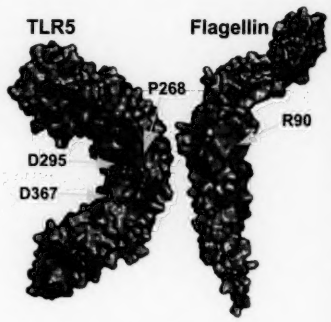

Amino acid variants (red) within Toll-like receptor 5 (TLR5) determine species-specific recognition of flagellin.
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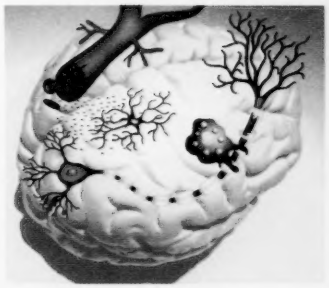

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The image depicts microglial activation by fibrin and the resulting axonal demyelination that occurs after a breach in the blood brain barrier. Related article by Adams et al.
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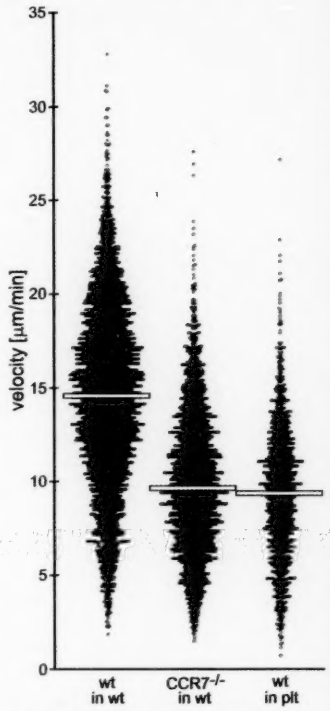

T cells migrate more slowly in the absence of CCR7 signaling.
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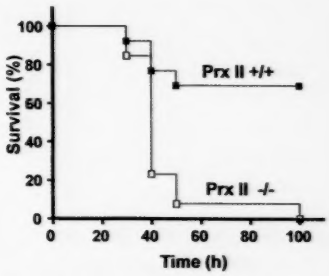
693 **Correction**



Mice lacking peroxiredoxin II are more susceptible to LPS-induced shock.
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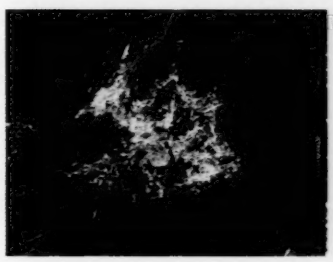

Endothelial progenitor cells (green) require heme oxygenase to enter and repair injured retinal capillaries (red).
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Illustration depicts the destruction of melanoma cells (green) by T cells that lack (pink) the ubiquitin ligase cbl-b. T cells that express (brown) cbl-b are not sufficiently activated and fail to attack tumor cells. Related article by Loeser et al.
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759 **Enhancement and suppression of signaling by the conserved tail of IgG memory–type B cell antigen receptors**
Keisuke Horikawa, Stephen W. Martin, Sarah L. Pogue, Karlee Silver, Kaiman Peng, Kiyoshi Takatsu, and Christopher C. Goodnow

771 **Lymph node topology dictates T cell migration behavior**
Joost B. Beltman, Athanasius F.M. Marée, Jennifer N. Lynch, Mark J. Miller, and Rob J. de Boer

781 **Diacylglycerol kinase ζ regulates microbial recognition and host resistance to *Toxoplasma gondii***
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793 **The humoral pattern recognition receptor PTX3 is stored in neutrophil granules and localizes in extracellular traps**
Sébastien Jaillon, Giuseppe Peri, Yves Delneste, Isabelle Frémaux, Andrea Doni, Federica Moalli, Cecilia Garlanda, Luigina Romani, Hugues Gascan, Silvia Bellocchio, Silvia Bozza, Marco A. Cassatella, Pascale Jeannin, and Alberto Mantovani

805 **Splenic accumulation of IL-10 mRNA in T cells distinct from CD4$^+$CD25$^+$ (Foxp3) regulatory T cells in human visceral leishmaniasis**
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819 **Repression of BCL-6 is required for the formation of human memory B cells in vitro**
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831 **Frequent and specific immunity to the embryonal stem cell–associated antigen SOX2 in patients with monoclonal gammopathy**
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841 **The Niemann-Pick type C2 protein loads isoglobotrihexosylceramide onto CD1d molecules and contributes to the thymic selection of NKT cells**
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853 ***Jinx*, an MCMV susceptibility phenotype caused by disruption of *Unc13d*: a mouse model of type 3 familial hemophagocytic lymphohistiocytosis**
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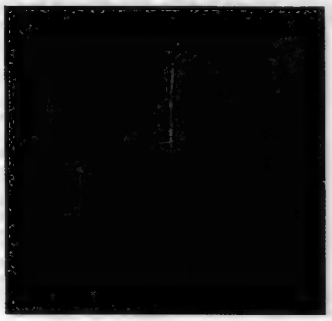

Lack of CCR7 on hematopoietic cells causes spontaneous formation of bronchus-associated lung tissue (BALT) that includes T (red) and B (blue) cells.
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A three-dimensional snapshot of a lymph node taken from a T cell's point of view shows a reticular network (gray) packed with dendritic cells (yellow and green).
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865 **Importance of group X–secreted phospholipase A_2 in allergen-induced airway inflammation and remodeling in a mouse asthma model**
William R. Henderson Jr., Emil Y. Chi, James G. Bollinger, Ying-tzang Tien, Xin Ye, Luca Castelli, Yuri P. Rubtsov, Alan G. Singer, Gertrude K.S. Chiang, Timo Nevalainen, Alexander Y. Rudensky, and Michael H. Gelb

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921 **A distal effect of microsomal triglyceride transfer protein deficiency on the lysosomal recycling of CD1d**
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941 **Viral antigen and extensive division maintain virus-specific CD8 T cells during chronic infection**
Haina Shin, Shawn D. Blackburn, Joseph N. Blattman, and E. John Wherry

951 **Antiviral $CD4^+$ memory T cells are IL-15 dependent**
Jared F. Purton, Joyce T. Tan, Mark P. Rubinstein, David M. Kim, Jonathan Sprent, and Charles D. Surh

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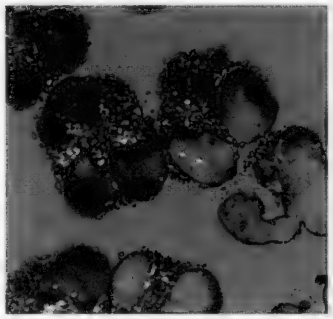
963 **Enhanced mast cell activation in mice deficient in the A2b adenosine receptor**
Xiaoyang Hua, Martina Kovarova, Kelly D. Chason, MyTrang Nguyen, Beverly H. Koller, and Stephen L. Tilley



The acute phase protein Pentraxin-3 (green) is stored inside granules (red) around neutrophil nuclei (blue).
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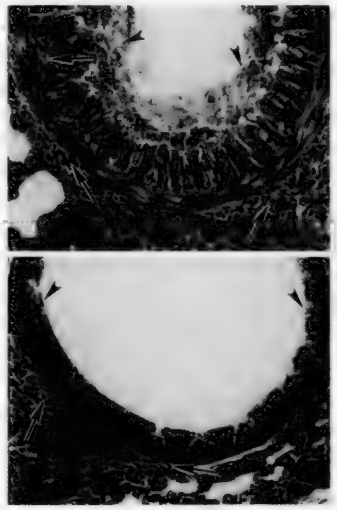

Phospholipase A_2 deficiency (bottom) reduces allergy symptoms in mice by remodeling their lung airways.
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1003 Distinct domains in Nbs1 regulate irradiation-induced checkpoints and apoptosis
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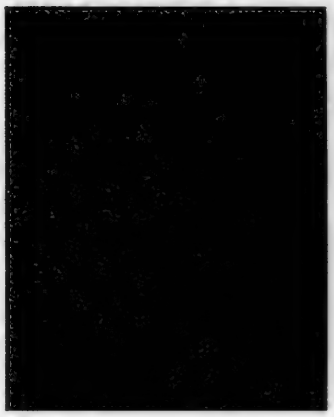
Tatsukata Kawagoe, Shintaro Sato, Andreas Jung, Masahiro Yamamoto, Kosuke Matsui, Hiroki Kato, Satoshi Uematsu, Osamu Takeuchi, and Shizuo Akira



ON THE COVER
Marking cells that have ever had AID activity (yellow) reveals that B cells turn on this enzyme during maturation and turn it off after differentiating into plasma or memory cells. Confocal microscopy by Makiko Takizawa and Kristien Zaal of NIAMS, NIH. Related article by Crouch et al.
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1025 **A critical role for IRAK4 kinase activity in Toll-like receptor–mediated innate immunity**
Tae Whan Kim, Kirk Staschke, Katarzyna Bulek, Jianhong Yao, Kristi Peters, Keun-Hee Oh, Yvonne Vandenburg, Hui Xiao, Wen Qian, Tom Hamilton, Booki Min, Ganes Sen, Raymond Gilmour, and Xiaoxia Li

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1049 **Fetal gene defects precipitate platelet-mediated pregnancy failure in factor V Leiden mothers**
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1057 **Inflammatory monocytes recruited after skeletal muscle injury switch into antiinflammatory macrophages to support myogenesis**
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1071 **Expression of lymphotoxin-$\alpha\beta$ on antigen-specific T cells is required for DC function**
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1083 **Semaphorin 7A plays a critical role in TGF-β_1–induced pulmonary fibrosis**
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1095 **A subset of dendritic cells induces CD4$^+$ T cells to produce IFN-γ by an IL-12–independent but CD70-dependent mechanism in vivo**
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1107 **Type I interferons protect neonates from acute inflammation through interleukin 10–producing B cells**
Xiaoming Zhang, Edith Deriaud, Xinan Jiao, Deborah Braun, Claude Leclerc, and Richard Lo-Man
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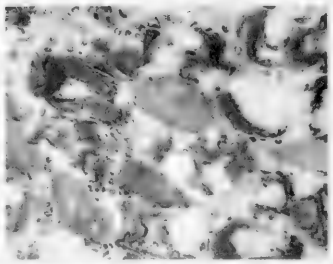
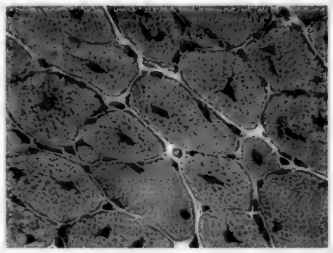
1119 **Mature natural killer cell and lymphoid tissue–inducing cell development requires Id2-mediated suppression of E protein activity**
Markus D. Boos, Yoshifumi Yokota, Gerard Eberl, and Barbara L. Kee





Inflammatory monocytes (blue, top) recruited to injured muscle turn into antiinflammatory macrophages (bottom) and aid muscle growth.
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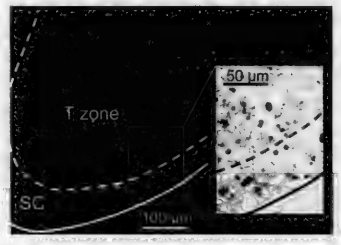

T cells that lack (red) the chemokine receptor CCR7 get stuck outside the T cell zone of the lymph node.
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1131 **The length of lipids bound to human CD1d molecules modulates the affinity of NKT cell TCR and the threshold of NKT cell activation**
Corinna McCarthy, Dawn Shepherd, Sebastian Fleire, Victoria S. Stronge, Michael Koch, Petr A. Illarionov, Giovanna Bossi, Mariolina Salio, Galit Denkberg, Faye Reddington, Andrea Tarlton, B. Gopal Reddy, Richard R. Schmidt, Yoram Reiter, Gillian M. Griffiths, P. Anton van der Merwe, Gurdyal S. Besra, E. Yvonne Jones, Facundo D. Batista, and Vincenzo Cerundolo
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1145 **Regulation of AID expression in the immune response**
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1157 **Activation-induced cytidine deaminase acts as a mutator in *BCR-ABL1*–transformed acute lymphoblastic leukemia cells**
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1167 **CCR7 ligands control basal T cell motility within lymph node slices in a phosphoinositide 3–kinase–independent manner**
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1181 **Lymphomas can develop from B cells chronically helped by idiotype-specific T cells**
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1193 **CD8 single-cell gene coexpression reveals three different effector types present at distinct phases of the immune response**
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1217 **Cytomegalovirus exploits IL-10–mediated immune regulation in the salivary glands**
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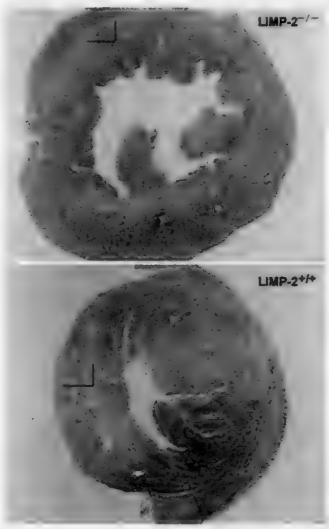

The lysosomal protein LIMP-2 prevents fibrosis (white) and protects mice against stress-induced heart disease.
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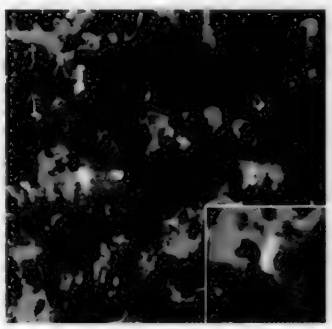

Idiotype-specific helper T cells (red) prompt growth of B cell (green) lymphomas.
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1227 **Lysosomal integral membrane protein 2 is a novel component of the cardiac intercalated disc and vital for load-induced cardiac myocyte hypertrophy**
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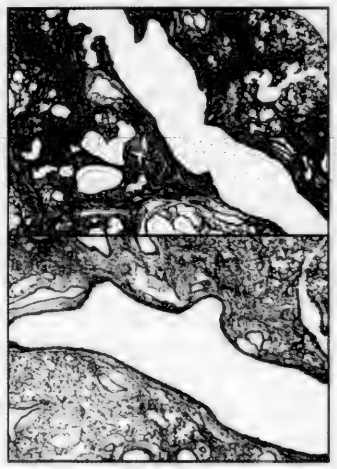

Transforming growth factor β signaling through the membrane protein Semaphorin 7A (top) induces pulmonary fibrosis (red), which is missing in SEMA 7A knockout mice (bottom).
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Medullary thymic epithelial cells (blue) expressing the transcription factor Aire (red) eliminate self-reactive T cells. Expression of Aire requires RANK–RANKL signals. Related article by Rossi et al.
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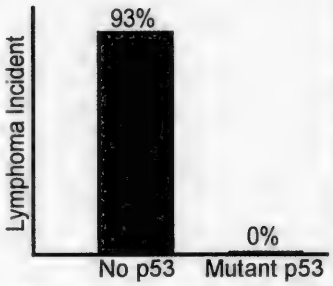

A p53 mutant that induces cell cycle arrest but not apoptosis still suppresses tumor development in mice.
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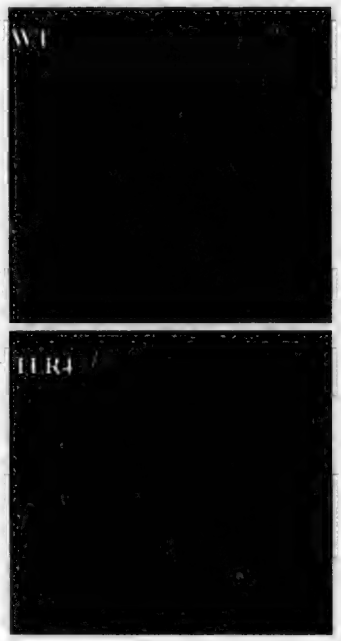

TLR4 activation on splenic stromal cells is not required for dendritic cell (green) migration into splenic T (red) and B (blue) cell areas.
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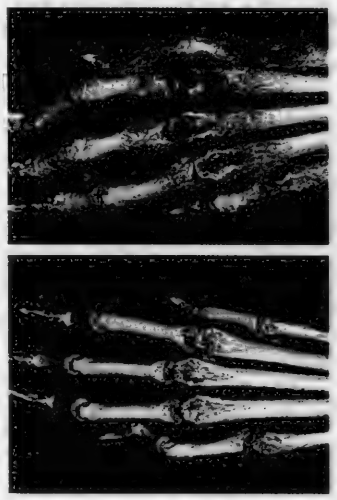
1453 **DNA damage-induced cellular senescence is sufficient to suppress tumorigenesis: a mouse model**
Thang Van Nguyen, Nahum Puebla-Osorio, Hui Pang, Melanie E. Dujka, and Chengming Zhu

1463 **MyD88-dependent expansion of an immature GR-1$^+$CD11b$^+$ population induces T cell suppression and Th2 polarization in sepsis**
Matthew J. Delano, Philip O. Scumpia, Jason S. Weinstein, Dominique Coco, Srinivas Nagaraj, Kindra M. Kelly-Scumpia, Kerri A. O'Malley, James L. Wynn, Svetlana Antonenko, Samer Z. Al-Quran, Ryan Swan, Chun-Shiang Chung, Mark A. Atkinson, Reuben Ramphal, Dmitry I. Gabrilovich, Wesley H. Reeves, Alfred Ayala, Joseph Phillips, Drake LaFace, Paul G. Heyworth, Michael Clare-Salzler, and Lyle L. Moldawer



A soluble inhibitor of the alternative complement pathway reduces arthritis in mice (bottom).
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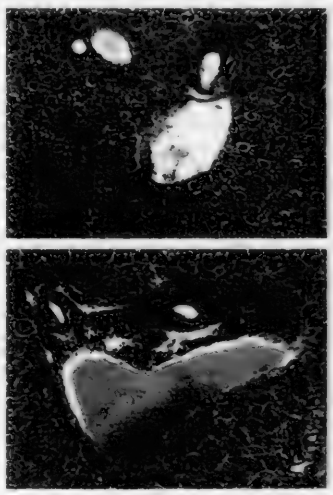

Hyperactive T cells in mice that lack a deubiquitinating enzyme (bottom) cause spontaneous intestinal inflammation.
See page 1475

1475 **Deubiquitinating enzyme CYLD negatively regulates the ubiquitin-dependent kinase Tak1 and prevents abnormal T cell responses**
William W. Reiley, Wei Jin, Andrew Joon Lee, Ato Wright, Xuefeng Wu, Eric F. Tewalt, Timothy O. Leonard, Christopher C. Norbury, Leo Fitzpatrick, Minying Zhang, and Shao-Cong Sun

1487 **Dendritic cell quiescence during systemic inflammation driven by LPS stimulation of radioresistant cells in vivo**
Martijn A. Nolte, Salomé LeibundGut-Landmann, Olivier Joffre, and Caetano Reis e Sousa

Colorectal tumors are more likely to develop when intestinal mucus proteins lack specific glycosylation modifications (right).
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ON THE COVER
Image shows a degenerated Dicer-deficient neuron. The absence of miRNA leads to a slow degeneration of cerebellar neurons in mice. Related article by Schaefer et al.
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EDITORIAL

1503 **How the rich get richer**
Mike Rossner and Ira Mellman

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1504 **CD11b tunes tolerance**
AID overwhelms Polβ in class-switching B cells
Keeping score of antigraft T cells
Neurons need miRNA to survive
Antitumor drug sends new signals
Hema Bashyam

FROM THE ARCHIVE

1507 **Lewis Dahl and the genetics of salt-induced hypertension**
Hema Bashyam

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1509 **Interleukin 25 promotes the initiation of proallergic type 2 responses**
Pornpimon Angkasekwinai, Heon Park, Yui-Hsi Wang, Yi-Hong Wang, Seon Hee Chang, David B. Corry, Yong-Jun Liu, Zhou Zhu, and Chen Dong

1519 **CD11b facilitates the development of peripheral tolerance by suppressing Th17 differentiation**
Driss Ehirchiou, Ying Xiong, Guangwu Xu, Wanjun Chen, Yufang Shi, and Li Zhang
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1525 **$CD8^-$ DCs induce IL-12–independent Th1 differentiation through Delta 4 Notch-like ligand in response to bacterial LPS**
Dimitris Skokos and Michel C. Nussenzweig

1533 **Expansion and tissue infiltration of an allospecific $CD4^+CD25^+CD45RO^+IL\text{-}7R\alpha^{high}$ cell population in solid organ transplant recipients**
Laura Codarri, Laure Vallotton, Donatella Ciuffreda, Jean-Pierre Venetz, Miguel Garcia, Karine Hadaya, Leo Buhler, Samuel Rotman, Manuel Pascual, and Giuseppe Pantaleo
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1543 **CREB/ATF-dependent T cell receptor–induced *FoxP3* gene expression: a role for DNA methylation**
Hyoung-Pyo Kim and Warren J. Leonard

1553 **Cerebellar neurodegeneration in the absence of microRNAs**
Anne Schaefer, Dónal O'Carroll, Chan Lek Tan, Dean Hillman, Mutsuyuki Sugimori, Rodolfo Llinas, and Paul Greengard
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1559 **The chemotherapeutic agent DMXAA potently and specifically activates the TBK1–IRF-3 signaling axis**
Zachary J. Roberts, Nadege Goutagny, Pin-Yu Perera, Hiroki Kato, Himanshu Kumar, Taro Kawai, Shizuo Akira, Ram Savan, David van Echo, Katherine A. Fitzgerald, Howard A. Young, Lai-Ming Ching, and Stefanie N. Vogel
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1571 **A LAD-III syndrome is associated with defective expression of the Rap-1 activator CalDAG-GEFI in lymphocytes, neutrophils, and platelets**
Ronit Pasvolsky, Sara W. Feigelson, Sara Sebnem Kilic, Amos J. Simon, Guy Tal-Lapidot, Valentin Grabovsky, Jill R. Crittenden, Ninette Amariglio, Michal Safran, Ann M. Graybiel, Gideon Rechavi, Shifra Ben-Dor, Amos Etzioni, and Ronen Alon

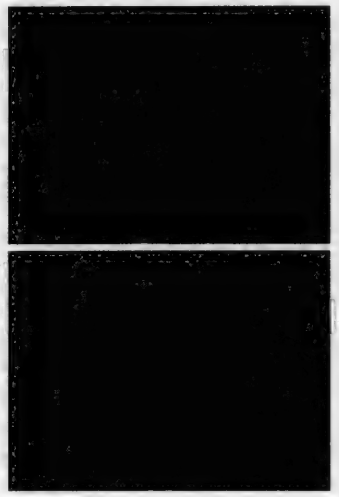
1583 **CD40 ligand and MHC class II expression are essential for human peripheral B cell tolerance**
Maxime Hervé, Isabelle Isnardi, Yen-shing Ng, James B. Bussel, Hans D. Ochs, Charlotte Cunningham-Rundles, and Eric Meffre

1595 **Tissue factor: a mediator of inflammatory cell recruitment, tissue injury, and thrombus formation in experimental colitis**
Christoph Anthoni, Janice Russell, Katherine C. Wood, Karen Y. Stokes, Thorsten Vowinkel, Daniel Kirchhofer, and D. Neil Granger

1603 **Requirements for survivin in terminal differentiation of erythroid cells and maintenance of hematopoietic stem and progenitor cells**
Cindy G. Leung, Yanfei Xu, Bretton Mularski, Hui Liu, Sandeep Gurbuxani, and John D. Crispino

1613 **Reactive oxygen species induce chondrocyte hypertrophy in endochondral ossification**
Kozo Morita, Takeshi Miyamoto, Nobuyuki Fujita, Yoshiaki Kubota, Keisuke Ito, Keiyo Takubo, Kana Miyamoto, Ken Ninomiya, Toru Suzuki, Ryotaro Iwasaki, Mitsuru Yagi, Hironari Takaishi, Yoshiaki Toyama, and Toshio Suda

1625 **Activation phenotype, rather than central– or effector–memory phenotype, predicts the recall efficacy of memory $CD8^+$ T cells**
Hirokazu Hikono, Jacob E. Kohlmeier, Shiki Takamura, Susan T. Wittmer, Alan D. Roberts, and David L. Woodland



Endothelial cells lacking mitogen-activated kinase 2 (MK2) (bottom) cannot polymerize actin (red) and hence do not respond to allergens.
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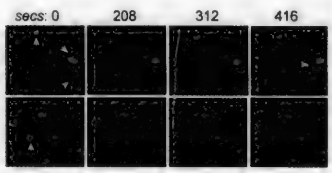


Tim-1 binding to high affinity ligands (top) triggers T cell movement (arrows).
See page 1691

1637 **MK2 controls the level of negative feedback in the NF-κB pathway and is essential for vascular permeability and airway inflammation**
Magdalena M. Gorska, Qiaoling Liang, Susan J. Stafford, Nicolas Goplen, Nilesh Dharajiya, Lei Guo, Sanjiv Sur, Matthias Gaestel, and Rafeul Alam

1653 **Notch–RBP-J signaling controls the homeostasis of CD8⁻ dendritic cells in the spleen**
Michele L. Caton, Matthew R. Smith-Raska, and Boris Reizis

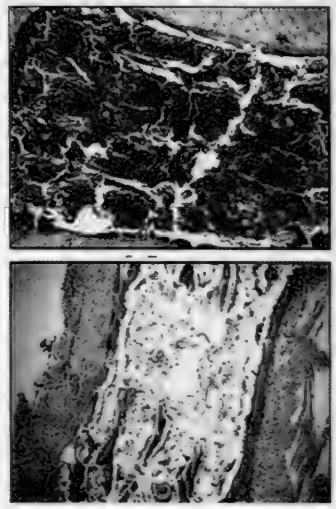
1665 **Bim/Bcl-2 balance is critical for maintaining naive and memory T cell homeostasis**
Sara Wojciechowski, Pulak Tripathi, Tristan Bourdeau, Luis Acero, H. Leighton Grimes, Jonathan D. Katz, Fred D. Finkelman, and David A. Hildeman

1677 **DNA polymerase β is able to repair breaks in switch regions and plays an inhibitory role during immunoglobulin class switch recombination**
Xiaoming Wu and Janet Stavnezer
See news item on page 1504

1691 **Differential engagement of Tim-1 during activation can positively or negatively costimulate T cell expansion and effector function**
Sheng Xiao, Nader Najafian, Jay Reddy, Monica Albin, Chen Zhu, Eric Jensen, Jaime Imitola, Thomas Korn, Ana C. Anderson, Zheng Zhang, Cristina Gutierrez, Thomas Moll, Raymond A. Sobel, Dale T. Umetsu, Hideo Yagita, Hisaya Akiba, Terry Strom, Mohamed H. Sayegh, Rosemarie H. DeKruyff, Samia J. Khoury, and Vijay K. Kuchroo

1703 **Distinct roles for Syk and ZAP-70 during early thymocyte development**
Emil H. Palacios and Arthur Weiss

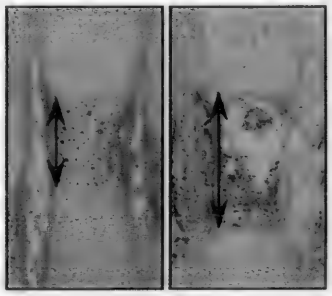
1717 **Role for DNA repair factor XRCC4 in immunoglobulin class switch recombination**
Pauline Soulas-Sprauel, Gwenaël Le Guyader, Paola Rivera-Munoz, Vincent Abramowski, Christelle Olivier-Martin, Cécile Goujet-Zalc, Pierre Charneau, and Jean-Pierre de Villartay



Bone marrow is missing in mice lacking the apoptosis inhibitor Survivin (bottom).
See page 1603

CORRECTIONS

1729 **Hematopoietic reconstitution by multipotent adult progenitor cells: precursors to long-term hematopoietic stem cells**
Marta Serafini, Scott J. Dylla, Masayuki Oki, Yves Heremans, Jakub Tolar, Yuehua Jiang, Shannon M. Buckley, Beatriz Pelacho, Terry C. Burns, Sarah Frommer, Derrick J. Rossi, David Bryder, Angela Panoskaltsis-Mortari, Matthew J. O'Shaughnessy, Molly Nelson-Holte, Gabriel C. Fine, Irving L. Weissman, Bruce R. Blazar, and Catherine M. Verfaillie



Reactive oxygen species drive bone mineralization and chondrocyte apoptosis (right).
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1731 A Reply from HHMI
Tom Cech, Jack Dixon, Avice Meehan, Josie Briggs, and Carl Rhodes

Response to HHMI
Mike Rossner and Ira Mellman

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1732 How inflammation signals heart trouble
CpGs relieve arthritis
EBV covers its tracks
All B cells need is BAFF
New mutations stabilize NOTCH1
Hema Bashyam

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1735 Receptor editing: How B cells stay tolerant
Hema Bashyam

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1737 Oral tolerance: is it all retinoic acid?
Harald von Boehmer

BRIEF DEFINITIVE REPORTS

1741 Cyclophilin A participates in the nuclear translocation of apoptosis-inducing factor in neurons after cerebral hypoxia-ischemia
Changlian Zhu, Xiaoyang Wang, Johanna Deinum, Zhiheng Huang, Jianfeng Gao, Nazanine Modjtahedi, Martha R. Neagu, Michael Nilsson, Peter S. Eriksson, Henrik Hagberg, Jeremy Luban, Guido Kroemer, and Klas Blomgren

1749 Repression of interleukin-4 in T helper type 1 cells by Runx/Cbfβ binding to the *Il4* silencer
Yoshinori Naoe, Ruka Setoguchi, Kaori Akiyama, Sawako Muroi, Masahiko Kuroda, Farah Hatam, Dan R. Littman, and Ichiro Taniuchi

1757 A functionally specialized population of mucosal CD103$^+$ DCs induces Foxp3$^+$ regulatory T cells via a TGF-β– and retinoic acid–dependent mechanism
Janine L. Coombes, Karima R.R. Siddiqui, Carolina V. Arancibia-Cárcamo, Jason Hall, Cheng-Ming Sun,[2] Yasmine Belkaid, and Fiona Powrie

ON THE COVER
In T cell acute lymphoblastic leukemia, FBW7 missense mutations block the addition of ubiquitins and proteosomal targeting of intranuclear NOTCH, thus increasing Myc activation. See related articles by O'Neil et al. and Thompson et al.
See pages 1813 and 1825

1765 **All-trans retinoic acid mediates enhanced T reg cell growth, differentiation, and gut homing in the face of high levels of co-stimulation**
Micah J. Benson, Karina Pino-Lagos, Mario Rosemblatt, and Randolph J. Noelle

ARTICLES

1775 **Small intestine lamina propria dendritic cells promote de novo generation of Foxp3 T reg cells via retinoic acid**
Cheng-Ming Sun, Jason A. Hall, Rebecca B. Blank, Nicolas Bouladoux, Mohamed Oukka, J. Rodrigo Mora, and Yasmine Belkaid

1787 **An intense form of homeostatic proliferation of naive CD8$^+$ cells driven by IL-2**
Jae-Ho Cho, Onur Boyman, Hee-Ok Kim, Bumsuk Hahm, Mark P. Rubinstein, Chris Ramsey, David M. Kim, Charles D. Surh, and Jonathan Sprent

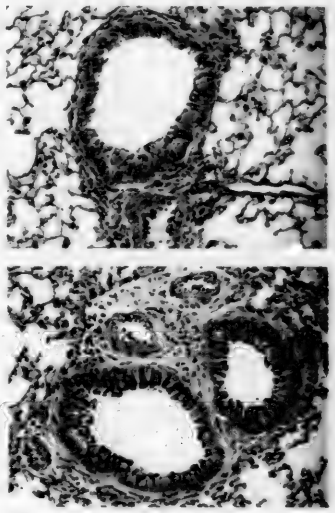
1803 **Naive CD8$^+$ T cells differentiate into protective memory-like cells after IL-2–anti–IL-2 complex treatment in vivo**
Daisuke Kamimura and Michael J. Bevan

1813 ***FBW7* mutations in leukemic cells mediate NOTCH pathway activation and resistance to γ-secretase inhibitors**
Jennifer O'Neil, Jonathan Grim, Peter Strack, Sudhir Rao, Deanne Tibbitts, Christopher Winter, James Hardwick, Markus Welcker, Jules P. Meijerink, Rob Pieters, Giulio Draetta, Rosalie Sears, Bruce E. Clurman, and A. Thomas Look
See news item on page 1733

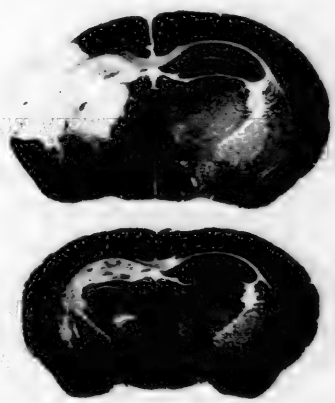
1825 **The SCF^{FBW7} ubiquitin ligase complex as a tumor suppressor in T cell leukemia**
Benjamin J. Thompson, Silvia Buonamici, Maria Luisa Sulis, Teresa Palomero, Tomas Vilimas, Giuseppe Basso, Adolfo Ferrando, and Iannis Aifantis
See news item on page 1733

1837 **IL-25 augments type 2 immune responses by enhancing the expansion and functions of TSLP-DC–activated Th2 memory cells**
Yui-Hsi Wang, Pornpimon Angkasekwinai, Ning Lu, Kui Shin Voo, Kazuhiko Arima, Shino Hanabuchi, Andreas Hippe, Chris J. Corrigan, Chen Dong, Bernhard Homey, Zhengbin Yao, Sun Ying, David P. Huston, and Yong-Jun Liu

1849 **Phenotypic and functional features of human Th17 cells**
Francesco Annunziato, Lorenzo Cosmi, Veronica Santarlasci, Laura Maggi, Francesco Liotta, Benedetta Mazzinghi, Eliana Parente, Lucia Filì, Simona Ferri, Francesca Frosali, Francesco Giudici, Paola Romagnani, Paola Parronchi, Francesco Tonelli, Enrico Maggi, and Sergio Romagnani



Mice that lack the receptor FcγRIII (top) have fewer inflammatory cells (blue) in their lungs and don't develop asthma.
See page 1875



Mice lacking cyclophilin A (bottom) are protected from hypoxia-induced brain injury (white) because their neurons escape apoptosis.
See page 1741

1863 **A CD8$^+$ T cell immune evasion protein specific to Epstein-Barr virus and its close relatives in Old World primates**
Andrew D. Hislop, Maaike E. Ressing, Daphne van Leeuwen, Victoria A. Pudney, Daniëlle Horst, Danijela Koppers-Lalic, Nathan P. Croft, Jacques J. Neefjes, Alan B. Rickinson, and Emmanuel J.H.J. Wiertz
See news item on page 1733

1875 **Signaling through FcγRIII is required for optimal T helper type (Th)2 responses and Th2-mediated airway inflammation**
Hozefa S. Bandukwala, Bryan S. Clay, Jiankun Tong, Purvi D. Mody, Judy L. Cannon, Rebecca A. Shilling, J. Sjef Verbeek, Joel V. Weinstock, Julian Solway, and Anne I. Sperling

1891 **MyD88-mediated signals induce the bactericidal lectin RegIIIγ and protect mice against intestinal *Listeria monocytogenes* infection**
Katharina Brandl, George Plitas, Bernd Schnabl, Ronald P. DeMatteo, and Eric G. Pamer

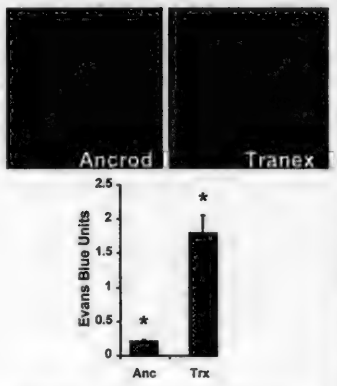
1901 **The neutrophil serine protease inhibitor *serpinb1* preserves lung defense functions in *Pseudomonas aeruginosa* infection**
Charaf Benarafa, Gregory P. Priebe, and Eileen Remold-O'Donnell

1911 **Inflammatory arthritis can be reined in by CpG-induced DC–NK cell cross talk**
Hsin-Jung Wu, Heloisa Sawaya, Bryce Binstadt, Margot Brickelmaier, Amanda Blasius, Leonid Gorelik, Umar Mahmood, Ralph Weissleder, John Carulli, Christophe Benoist, and Diane Mathis
See news item on page 1732

1923 **Organ-dependent in vivo priming of naive CD4$^+$, but not CD8$^+$, T cells by plasmacytoid dendritic cells**
Anita Sapoznikov, Jens A.A. Fischer, Tami Zaft, Rita Krauthgamer, Andrzej Dzionek, and Steffen Jung

1935 **Signal transducer of inflammation gp130 modulates atherosclerosis in mice and man**
Maren Luchtefeld, Heribert Schunkert, Monika Stoll, Tina Selle, Rachel Lorier, Karsten Grote, Christian Sagebiel, Kumaravelu Jagavelu, Uwe J.F. Tietge, Ulrike Assmus, Konrad Streetz, Christian Hengstenberg, Marcus Fischer, Björn Mayer, Karen Maresso, Nour Eddine El Mokhtari, Stefan Schreiber, Werner Müller, Udo Bavendiek, Christina Grothusen, Helmut Drexler, Christian Trautwein, Ulrich Broeckel, and Bernhard Schieffer
See news item on page 1732

1945 **The role of the Runx transcription factors in thymocyte differentiation and in homeostasis of naive T cells**
Takeshi Egawa, Robert E. Tillman, Yoshinori Naoe, Ichiro Taniuchi, and Dan R. Littman



Depleting fibrin (green) decreases vascular damage in the brain (bottom).
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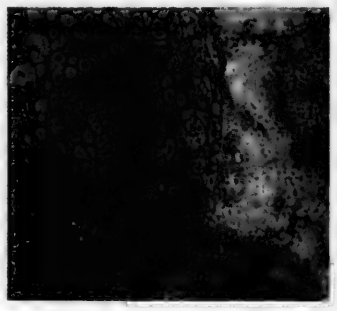


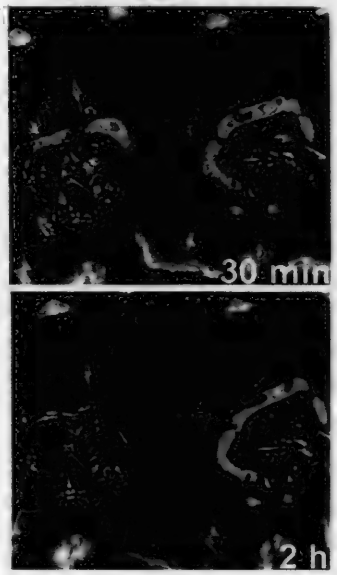
Human bile duct (green) and liver (red) progenitor cells arise from the same hepatic stem cell.
See page 1973

1959 **BAFF and MyD88 signals promote a lupuslike disease independent of T cells**
Joanna R. Groom, Carrie A. Fletcher, Stacey N. Walters, Shane T. Grey, Sally V. Watt, Mathew J. Sweet, Mark J. Smyth, Charles R. Mackay, and Fabienne Mackay
See news item on page 1733

1973 **Human hepatic stem cells from fetal and postnatal donors**
Eva Schmelzer, Lili Zhang, Andrew Bruce, Eliane Wauthier, John Ludlow, Hsin-lei Yao, Nicholas Moss, Alaa Melhem, Randall McClelland, William Turner, Michael Kulik, Sonya Sherwood, Tommi Tallheden, Nancy Cheng, Mark E. Furth, and Lola M. Reid

1989 **A/T mutagenesis in hypermutated immunoglobulin genes strongly depends on PCNA^{K164} modification**
Petra Langerak, Anders O.H. Nygren, Peter H.L. Krijger, Paul C.M. van den Berk, and Heinz Jacobs

1999 **Fibrin deposition accelerates neurovascular damage and neuroinflammation in mouse models of Alzheimer's disease**
Justin Paul, Sidney Strickland, and Jerry P. Melchor



Mice lacking MyD88 (right) fail to clear Listeria monocytogenes (colors) from their small intestines.
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2010 Precursor loss triggers AIDS
A MyD88 meddles with survival
T-bet terminates self-renewal
Following the trail from COX-2 to clotting
T cell education dictates function
Hema Bashyam

FROM THE ARCHIVE

2013 Uncovering the dark side of TNF
Hema Bashyam

BRIEF DEFINITIVE REPORTS

2015 Requirement for T-bet in the aberrant differentiation of unhelped memory CD8+ T cells
Andrew M. Intlekofer, Naofumi Takemoto, Charlly Kao, Arnob Banerjee, Felix Schambach, John K. Northrop, Hao Shen, E. John Wherry, and Steven L. Reiner
See news item on page 2011

2023 An antigen-specific pathway for CD8 T cells across the blood-brain barrier
Ian Galea, Martine Bernardes-Silva, Penny A. Forse, Nico van Rooijen, Roland S. Liblau, and V. Hugh Perry

2031 Impaired T lymphocyte trafficking in mice deficient in an actin-nucleating protein, mDia1
Daiji Sakata, Hiroyuki Taniguchi, Shingo Yasuda, Aki Adachi-Morishima, Yoko Hamazaki, Rika Nakayama, Takashi Miki, Nagahiro Minato, and Shuh Narumiya

2039 TCR-based lineage tracing: no evidence for conversion of conventional into regulatory T cells in response to a natural self-antigen in pancreatic islets
Jamie Wong, Diane Mathis, and Christophe Benoist

2047 Mutations of the Igβ gene cause agammaglobulinemia in man
Simona Ferrari, Vassilios Lougaris, Stefano Caraffi, Roberta Zuntini, Jianying Yang, Annarosa Soresina, Antonella Meini, Giantonio Cazzola, Cesare Rossi, Michael Reth, and Alessandro Plebani

2053 COX-2 suppresses tissue factor expression via endocannabinoid-directed PPARδ activation
Mallika Ghosh, Haibin Wang, Youxi Ai, Elisa Romeo, James P. Luyendyk, Jeffrey M. Peters, Nigel Mackman, Sudhansu K. Dey, and Timothy Hla
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ON THE COVER
Image shows that the adaptor protein MyD88-5 (green) is clustered around mitochondria (red) near the nucleus (blue) in a neuron. By also binding to microtubules, MyD88-5 might direct mitochondrial traffic. Related article by Kim et al.
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ARTICLES

2063 **MyD88-5 links mitochondria, microtubules, and JNK3 in neurons and regulates neuronal survival**
Younghwa Kim, Ping Zhou, Liping Qian, Jen-Zen Chuang, Jessica Lee, Chenjian Li, Costantino Iadecola, Carl Nathan, and Aihao Ding
See news item on page 2010

2075 **Memory CD8$^+$ T cells mediate antibacterial immunity via CCL3 activation of TNF/ROI$^+$ phagocytes**
Emilie Narni-Mancinelli, Laura Campisi, Delphine Bassand, Julie Cazareth, Pierre Gounon, Nicolas Glaichenhaus, and Grégoire Lauvau

2089 **Nitrite augments tolerance to ischemia/reperfusion injury via the modulation of mitochondrial electron transfer**
Sruti Shiva, Michael N. Sack, James J. Greer, Mark Duranski, Lorna A. Ringwood, Lindsay Burwell, Xunde Wang, Peter H. MacArthur, Amir Shoja, Nalini Raghavachari, John W. Calvert, Paul S. Brookes, David J. Lefer, and Mark T. Gladwin

2103 **New markers for murine memory B cells that define mutated and unmutated subsets**
Shannon M. Anderson, Mary M. Tomayko, Anupama Ahuja, Ann M. Haberman, and Mark J. Shlomchik

2115 **Presenilins regulate αβ T cell development by modulating TCR signaling**
Karen Laky and B.J. Fowlkes

2131 **Blood leukocyte microarrays to diagnose systemic onset juvenile idiopathic arthritis and follow the response to IL-1 blockade**
Florence Allantaz, Damien Chaussabel, Dorothee Stichweh, Lynda Bennett, Windy Allman, Asuncion Mejias, Monica Ardura, Wendy Chung, Carol Wise, Karolina Palucka, Octavio Ramilo, Marilynn Punaro, Jacques Banchereau, and Virginia Pascual

2145 **Thymic selection pathway regulates the effector function of CD4 T cells**
Wei Li, M. Hanief Sofi, Norman Yeh, Sarita Sehra, Brian P. McCarthy, Dipak R. Patel, Randy R. Brutkiewicz, Mark H. Kaplan, and Cheong-Hee Chang
See news item on page 2011

2159 **Expansion and function of Foxp3-expressing T regulatory cells during tuberculosis**
James P. Scott-Browne, Shahin Shafiani, Glady's Tucker-Heard, Kumiko Ishida-Tsubota, Jason D. Fontenot, Alexander Y. Rudensky, Michael J. Bevan, and Kevin B. Urdahl

Antigen-presenting endothelial cells (green) that line blood vessels (red) allow T cells to enter the brain.
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Tissue damage (white, top) caused by restored blood supply after a heart attack can be minimized by pre-injection with nitrites (bottom).
See page 2089

2171 **Progressive CD4$^+$ central–memory T cell decline results in CD4$^+$ effector–memory insufficiency and overt disease in chronic SIV infection**
Afam Okoye, Martin Meier-Schellersheim, Jason M. Brenchley, Shoko I. Hagen, Joshua M. Walker, Mukta Rohankhedkar, Richard Lum, John B. Edgar, Shannon L. Planer, Alfred Legasse, Andrew W. Sylwester, Michael Piatak Jr., Jeffrey D. Lifson, Vernon C. Maino, Donald L. Sodora, Daniel C. Douek, Michael K. Axthelm, Zvi Grossman, and Louis J. Picker
See news item on page 2010

2187 **Cross-competition of CD8$^+$ T cells shapes the immunodominance hierarchy during boost vaccination**
Wolfgang Kastenmuller, Georg Gasteiger, Julian H. Gronau, Robert Baier, Ronny Ljapoci, Dirk H. Busch, and Ingo Drexler

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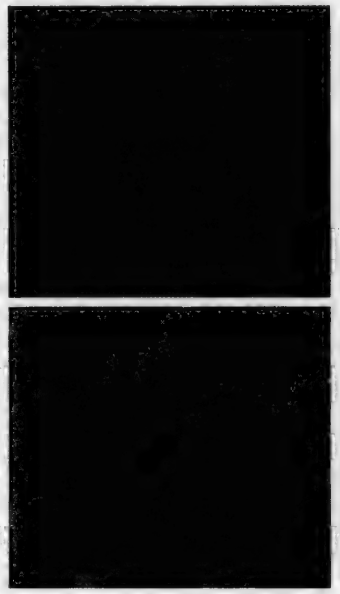

Mutated Wiskott-Aldrich syndrome protein (top) slows cell division by causing a build-up of actin (red) between dividing cells.
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Regulatory T cells (green) accumulate in the lung (red) of mice infected with *Mycobacterium tuberculosis* (right).
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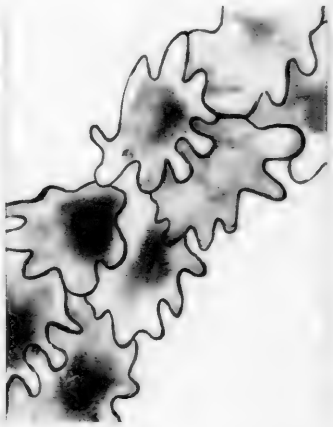

ON THE COVER
Watercolor by New York artist Emilie Clark (emilie@emilieclark.com). Image shows button-like junctions (green) holding together the oak leaf–shaped endothelial cells that line the tips of lymph vessels. Related article by Baluk et al.
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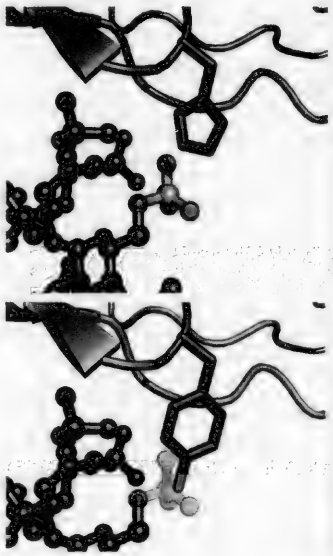

Changing an amino acid (red and yellow) in Factor H alters its specificity for sugar residues (green).
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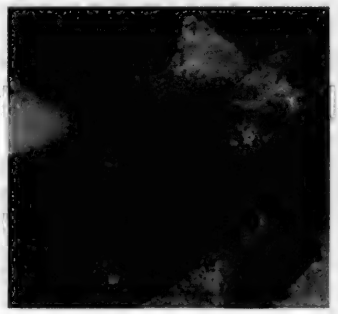

Macrophages that express the scavenger receptor MARCO (green) prevent autoreactivity by ingesting apoptotic cells (red and blue) in the spleen.
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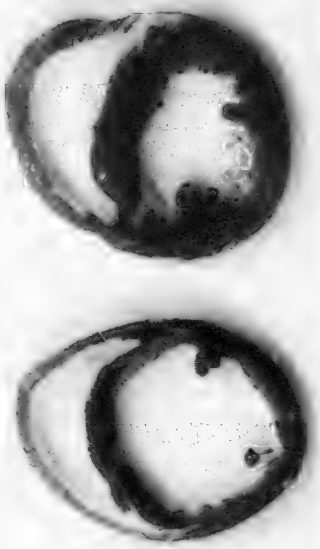

Mouse hearts enlarge in the absence of caveolin-1 (top) but are restored (bottom) by the endothelial expression of this membrane protein.
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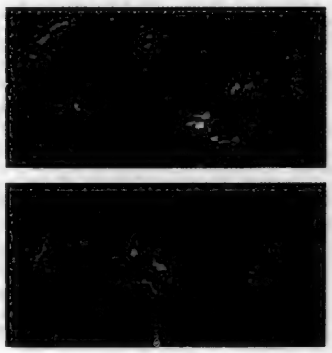

Lymphocytes (red and green) accumulate in the large intestine (blue) when they express the sphingosine-1-phosphate receptor (top) but emigrate when they down-regulate it (bottom).
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An NK cell (top) isn't cytotoxic if the cytoskeletal protein CIP4 (red) fails to bring the centrosome (blue) to the immunological synapse.
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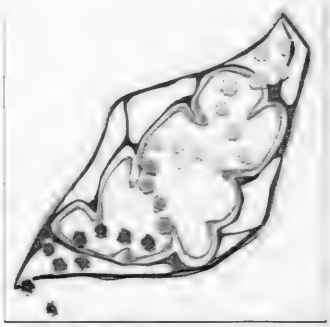

ON THE COVER
Artwork (cut Coloroid paper on paper) by New York artist Rachel Urkowitz (rachelurk@earthlink.net). Image depicts the short-lived four-day education of T cells in the thymic medulla with the older cells (dark brown) exiting first. Related article by McCaughtry et al.
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2545 **Autocrine/paracrine TGFβ1 is required for the development of epidermal Langerhans cells**
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2603 **Opposing activities of two novel members of the IL-1 ligand family regulate skin inflammation**
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2615 **Regulation of B cell homeostasis and activation by the tumor suppressor gene *CYLD***
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The SARS Corona virus (red) preferentially infects a subset of putative stem cells (green) in the lung.
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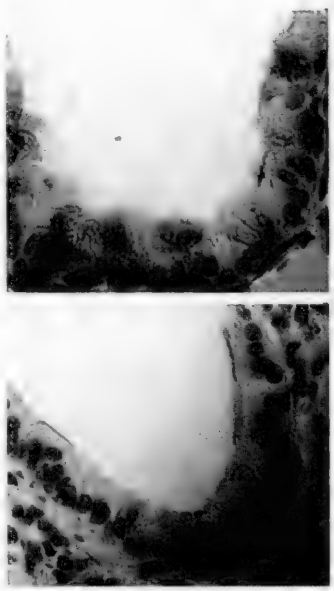

The mucous cells (brown) that accumulate in lungs after viral infection are missing in mice lacking the immunoglobulin receptor FceRIa (bottom).
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2629 **Molecular mechanism of mast cell–mediated innate defense against endothelin and snake venom sarafotoxin**
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2655 **Germinal centers in human lymph nodes contain reactivated memory B cells**
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2719 **LPS-induced down-regulation of signal regulatory protein α contributes to innate immune activation in macrophages**
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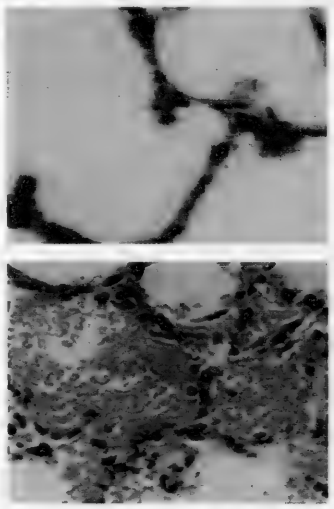

Macrophages (red) invade lung tissue, enhance toxic shock, and cause organ failure when mice lack the macrophage inhibitory protein SIRP1α (bottom).
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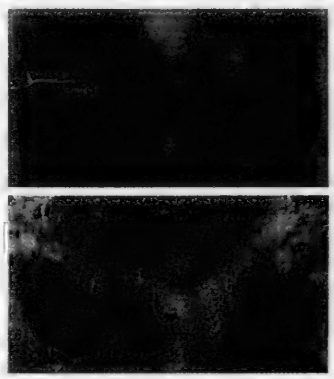

B cells (green) but not T cells (red) accumulate in the mouse spleen when the CYLD tumor suppressor is missing (bottom).
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A mouse that expresses IL-1F6 in its skin cells develops inflamed skin lesions (bottom).
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Watercolor by New York artist Emilie Clark (Emilie@emilieclark.com). Breast cancer cells that overexpress Notch and thus lose E-cadherin (red) metastasize through blood vessels (pink). Related article by Leong et al.
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2773 JEM content to be deposited automatically in PubMed Central
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2875 **Conditional inactivation of *Fbxw7* impairs cell-cycle exit during T cell differentiation and results in lymphomatogenesis**
Ichiro Onoyama, Ryosuke Tsunematsu, Akinobu Matsumoto, Taichi Kimura, Ignacio Moreno de Alborán, Keiko Nakayama, and Keiichi I. Nakayama

2889 **An ITAM-signaling pathway controls cross-presentation of particulate but not soluble antigens in dendritic cells**
Daniel B. Graham, Linda M. Stephenson, Siu Kit Lam, Karry Brim, Hyang Mi Lee, Jhoanne Bautista, Susan Gilfillan, Shreeram Akilesh, Keiko Fujikawa, and Wojciech Swat

2899 **Dysregulated Epstein-Barr virus infection in the multiple sclerosis brain**
Barbara Serafini, Barbara Rosicarelli, Diego Franciotta, Roberta Magliozzi, Richard Reynolds, Paola Cinque, Laura Andreoni, Pankaj Trivedi, Marco Salvetti, Alberto Faggioni, and Francesca Aloisi

B cell tumors in mice lacking AID have a chromosomal translocation (arrow) between chromosomes 12 (red) and 15 (green).
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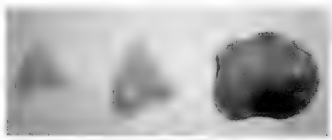

In the absence of the ubiquitin ligase Fbxw7, young T cells proliferate unchecked, leading to an enlarged thymus (middle) that may turn into a lymphoma (right).
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2913 **HMGB1 release induced by liver ischemia involves Toll-like receptor 4–dependent reactive oxygen species production and calcium-mediated signaling**
Allan Tsung, John R. Klune, Xianghong Zhang, Geetha Jeyabalan, Zongxian Cao, Ximei Peng, Donna B. Stolz, David A. Geller, Matthew R. Rosengart, and Timothy R. Billiar

2925 **Notch ligand Delta-like 4 regulates disease pathogenesis during respiratory viral infections by modulating Th2 cytokines**
Matthew A. Schaller, Rupak Neupane, Brian D. Rudd, Steven L. Kunkel, Lara E. Kallal, Pamela Lincoln, John B. Lowe, Yunfang Man, and Nicholas W. Lukacs

2935 **Jagged1-mediated Notch activation induces epithelial-to-mesenchymal transition through Slug-induced repression of E-cadherin**
Kevin G. Leong, Kyle Niessen, Iva Kulic, Afshin Raouf, Connie Eaves, Ingrid Pollet, and Aly Karsan
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2949 **Pyruvate kinase deficiency confers susceptibility to *Salmonella typhimurium* infection in mice**
Marie-France Roy, Noémie Riendeau, Christian Bédard, Pierre Hélie, Gundula Min-Oo, Karine Turcotte, Philippe Gros, François Canonne-Hergaux, and Danielle Malo
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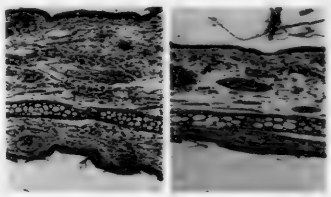
2963 **A protein associated with Toll-like receptor (TLR) 4 (PRAT4A) is required for TLR-dependent immune responses**
Koichiro Takahashi, Takuma Shibata, Sachiko Akashi-Takamura, Takashi Kiyokawa, Yasutaka Wakabayashi, Natsuko Tanimura, Toshihiko Kobayashi, Fumi Matsumoto, Ryutaro Fukui, Taku Kouro, Yoshinori Nagai, Kiyoshi Takatsu, Shin-ichiroh Saitoh, and Kensuke Miyake

2977 **Phosphoinositide 3–kinase γ participates in T cell receptor–induced T cell activation**
Isabela Alcázar, Miriam Marqués, Amit Kumar, Emilio Hirsch, Matthias Wymann, Ana C. Carrera, and Domingo F. Barber

2989 **AID-deficient Bcl-xL transgenic mice develop delayed atypical plasma cell tumors with unusual Ig/Myc chromosomal rearrangements**
Alexander L. Kovalchuk, Wendy duBois, Elizabeth Mushinski, Nicole E. McNeil, Carsten Hirt, Chen-Feng Qi, Zhaoyang Li, Siegfried Janz, Tasuku Honjo, Masamichi Muramatsu, Thomas Ried, Timothy Behrens, and Michael Potter

3003 **BCL11B is required for positive selection and survival of double-positive thymocytes**
Diana I. Albu, Dongyun Feng, Debarati Bhattacharya, Nancy A. Jenkins, Neal G. Copeland, Pentao Liu, and Dorina Avram



Fewer immune cells (pink) flood to the site of allergic contact in the skin when the prostaglandin receptor EP1 is missing (right).
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B cells (green) infected with the Epstein-Barr virus (red) form clumps in the brains of patients with progressive multiple sclerosis.
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3017 **APE1- and APE2-dependent DNA breaks in immunoglobulin class switch recombination**
Jeroen E.J. Guikema, Erin K. Linehan, Daisuke Tsuchimoto, Yusaku Nakabeppu, Phyllis R. Strauss, Janet Stavnezer, and Carol E. Schrader

3027 **Differential natural killer cell–mediated inhibition of HIV-1 replication based on distinct KIR/HLA subtypes**
Galit Alter, Maureen P. Martin, Nickolas Teigen, William H. Carr, Todd J. Suscovich, Arne Schneidewind, Hendrik Streeck, Michael Waring, Angela Meier, Christian Brander, Jeffrey D. Lifson, Todd M. Allen, Mary Carrington, and Marcus Altfeld

3037 **The healing myocardium sequentially mobilizes two monocyte subsets with divergent and complementary functions**
Matthias Nahrendorf, Filip K. Swirski, Elena Aikawa, Lars Stangenberg, Thomas Wurdinger, Jose-Luiz Figueiredo, Peter Libby, Ralph Weissleder, and Mikael J. Pittet
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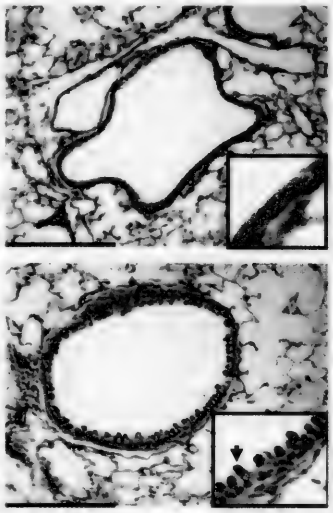
3049 **Different composition of the human and the mouse γδ T cell receptor explains different phenotypes of CD3γ and CD3δ immunodeficiencies**
Gabrielle M. Siegers, Mahima Swamy, Edgar Fernández-Malavé, Susana Minguet, Sylvia Rathmann, Alberto C. Guardo, Verónica Pérez-Flores, Jose R. Regueiro, Balbino Alarcón, Paul Fisch, and Wolfgang W.A. Schamel



Mice lacking the transcriptional inhibitor Ets-1 (bottom) make more IL-17 and consequently have more mucus-producing cells (arrowhead).
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ON THE COVER
A new population of dendritic cells expressing the lectin langerin resides in the dermis of the skin. Related articles by Poulin, Ginhoux, and Bursch.
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3052 **Show me the data**
Mike Rossner, Heather Van Epps, and Emma Hill

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3054 **Skin DCs go deeper**
Th17 blockade reduces the itch
Choking on mitochondria
Antibody-driven psychosis
Antibodies, hold the light chain
Hema Bashyam

FROM THE ARCHIVE

3057 **Macrophages and nitric oxide: A deadly combination**
Jacqueline Ruttimann

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3059 **Alu elements mediate *MYB* gene tandem duplication in human T-ALL**
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3067 **JAM-A regulates permeability and inflammation in the intestine in vivo**
Mike G. Laukoetter, Porfirio Nava, Winston Y. Lee, Eric A. Severson, Christopher T. Capaldo, Brian A. Babbin, Ifor R. Williams, Michael Koval, Eric Peatman, Jacquelyn A. Campbell, Terence S. Dermody, Asma Nusrat, and Charles A. Parkos

3077 **Noncanonical Wnt signaling promotes apoptosis in thymocyte development**
Huiling Liang, Andrew H. Coles, Zhiqing Zhu, Jennifer Zayas, Roland Jurecic, Joonsoo Kang, and Stephen N. Jones

3085 **A human postnatal lymphoid progenitor capable of circulating and seeding the thymus**
Emmanuelle M. Six, Delphine Bonhomme, Marta Monteiro, Kheira Beldjord, Monika Jurkowska, Corinne Cordier-Garcia, Alexandrine Garrigue, Liliane Dal Cortivo, Benedita Rocha, Alain Fischer, Marina Cavazzana-Calvo, and Isabelle André-Schmutz

3095 **B cell–intrinsic TLR signals amplify but are not required for humoral immunity**
Almut Meyer-Bahlburg, Socheath Khim, and David J. Rawlings

3103 **Talin is required for integrin-mediated platelet function in hemostasis and thrombosis**
Brian G. Petrich, Patrizia Marchese, Zaverio M. Ruggeri, Saskia Spiess, Rachel A.M. Weichert, Feng Ye, Ralph Tiedt, Radek C. Skoda, Susan J. Monkley, David R. Critchley, and Mark H. Ginsberg

3113 **Loss of talin1 in platelets abrogates integrin activation, platelet aggregation, and thrombus formation in vitro and in vivo**
Bernhard Nieswandt, Markus Moser, Irina Pleines, David Varga-Szabo, Sue Monkley, David Critchley, and Reinhard Fässler

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3119 **The dermis contains langerin$^+$ dendritic cells that develop and function independently of epidermal Langerhans cells**
Lionel Franz Poulin, Sandrine Henri, Béatrice de Bovis, Elisabeth Devilard, Adrien Kissenpfennig, and Bernard Malissen
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3133 **Blood-derived dermal langerin$^+$ dendritic cells survey the skin in the steady state**
Florent Ginhoux, Matthew P. Collin, Milena Bogunovic, Michal Abel, Marylene Leboeuf, Julie Helft, Jordi Ochando, Adrien Kissenpfennig, Bernard Malissen, Marcos Grisotto, Hans Snoeck, Gwendalyn Randolph, and Miriam Merad
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3147 **Identification of a novel population of Langerin$^+$ dendritic cells**
Laura S. Bursch, Liangchun Wang, Botond Igyarto, Adrien Kissenpfennig, Bernard Malissen, Daniel H. Kaplan, and Kristin A. Hogquist
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3157 **Dual GPCR and GAG mimicry by the M3 chemokine decoy receptor**
Jennifer M. Alexander-Brett and Daved H. Fremont

3173 **Bronchial smooth muscle remodeling involves calcium-dependent enhanced mitochondrial biogenesis in asthma**
Thomas Trian, Giovanni Benard, Hugues Begueret, Rodrigue Rossignol, Pierre-Olivier Girodet, Debajyoti Ghosh, Olga Ousova, Jean-Marc Vernejoux, Roger Marthan, José-Manuel Tunon-de-Lara, and Patrick Berger
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3183 **Amelioration of epidermal hyperplasia by TNF inhibition is associated with reduced Th17 responses**
Lisa C. Zaba, Irma Cardinale, Patricia Gilleaudeau, Mary Sullivan-Whalen, Mayte Suárez Fariñas, Judilyn Fuentes-Duculan, Inna Novitskaya, Artemis Khatcherian, Mark J. Bluth, Michelle A. Lowes, and James G. Krueger
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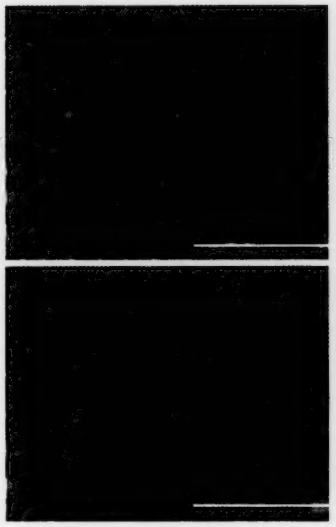

The density of capillaries (green) of injured hearts increases (top) after injection with endothelial progenitor cells.
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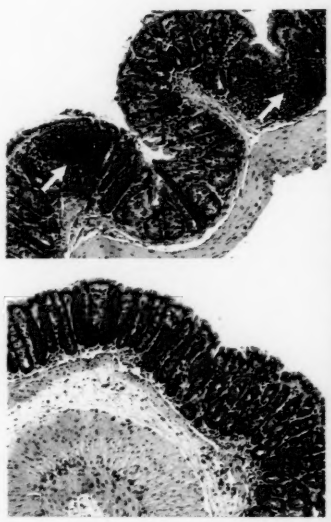

Mice lacking the membrane protein JAM-A develop inflammatory lymphoid cell clusters (white arrows) in the intestinal lumen.
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3195 **Multiple, conserved cryptic recombination signals in V_H gene segments: detection of cleavage products only in pro–B cells**
Marco Davila, Feifei Liu, Lindsay G. Cowell, Anne E. Lieberman, Emily Heikamp, Anjali Patel, and Garnett Kelsoe

3209 **Dependence of antibody gene diversification on uracil excision**
Javier M. Di Noia, Gareth T. Williams, Denice T.Y. Chan, Jean-Marie Buerstedde, Geoff S. Baldwin, and Michael S. Neuberger

3221 **Antiribosomal-P autoantibodies from psychiatric lupus target a novel neuronal surface protein causing calcium influx and apoptosis**
Soledad Matus, Patricia V. Burgos, Marcela Bravo-Zehnder, Regine Kraft, Omar H. Porras, Paula Farías, L. Felipe Barros, Fernando Torrealba, Loreto Massardo, Sergio Jacobelli, and Alfonso González
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3235 **Immune recognition of *Pseudomonas aeruginosa* mediated by the IPAF/NLRC4 inflammasome**
Fayyaz S. Sutterwala, Lilia A. Mijares, Li Li, Yasunori Ogura, Barbara I. Kazmierczak, and Richard A. Flavell

3247 **Chromosomal position of a V_H gene segment determines its activation and inactivation as a substrate for V(D)J recombination**
Jamie Geier Bates, Dragana Cado, Hector Nolla, and Mark S. Schlissel

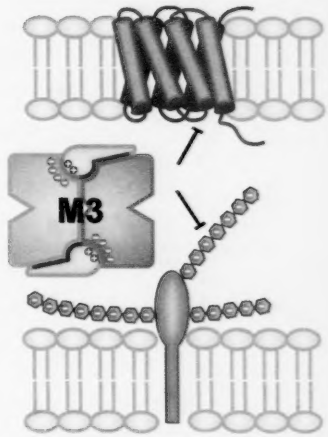
3257 **Role of host tissues for sustained humoral effects after endothelial progenitor cell transplantation into the ischemic heart**
Hyun-Jai Cho, Namho Lee, Ji Yoon Lee, Yong Jin Choi, Masaaki Ii, Andrea Wecker, Jin-Ok Jeong, Cynthia Curry, Gangian Qin, and Young-sup Yoon

3271 **Heavy chain–only antibodies are spontaneously produced in light chain–deficient mice**
Xiangang Zou, Michael J. Osborn, Daniel J. Bolland, Jennifer A. Smith, Daniel Corcos, Maureen Hamon, David Oxley, Amanda Hutchings, Geoff Morgan, Fatima Santos, Peter J. Kilshaw, Michael J. Taussig, Anne E. Corcoran, and Marianne Brüggemann
See news item on page 3055

3285 **IκB kinase β–induced phosphorylation of CARMA1 contributes to CARMA1–Bcl10–MALT1 complex formation in B cells**
Hisaaki Shinohara, Shiori Maeda, Hiroshi Watarai, and Tomohiro Kurosaki

CORRECTIONS

3295 **APE1- and APE2-dependent DNA breaks in immunoglobulin class switch recombination**
Jeroen E.J. Guikema, Erin K. Linehan, Daisuke Tsuchimoto, Yusaku Nakabeppu, Phyllis R. Strauss, Janet Stavnezer, and Carol E. Schrader



The herpesvirus protein M3 dampens inflammation by blocking the binding of chemokines (pink) to their receptors (purple) and to cell surface sugars (green).
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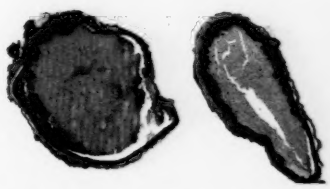

An injured artery accumulates platelet-filled clots (left), but platelets do not accumulate in the absence of Talin-1 (right).
See page 3103